



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/912,723 | 07/23/2001 | Mark A. Lauer | LAUM-004 | 5523 |

7590

05/19/2003

Mark Lauer
7041 Koll Center Parkway, Suite 280
Pleasanton, CA 94566

EXAMINER

KLIMOWICZ, WILLIAM JOSEPH

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2652

DATE MAILED: 05/19/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/912,723

Applicant(s)

LAUER, MARK A.

Examiner

William J. Klimowicz

Art Unit

2652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 6-14 and 17-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-14 and 17-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2, 3. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Specie IV (FIGS. 20-23) (corresponding to claims 1-4, 6-14 and 17-20) in Paper No. 5, filed May 6, 2003 is acknowledged. The Applicant has voluntarily cancelled claims drawn to the nonelected embodiments.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-4, 6-8, 10-14, 19 and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Soeno et al. (US 6,246,552 B1).

Art Unit: 2652

As per claim 1, Soeno et al. (US 6,246,552 B1) discloses a device (including 1, 2) for reading or writing information, the device comprising: an electromagnetic transducer (1) including a plurality of solid transducer layers (inherently provided, e.g., the poles and gap of an inductive head which must necessarily be present in order to operate), a substrate (e.g., 43) adjoining said transducer (1), said substrate (43) shaped as a rigid body adjacent to said transducer (1) and as a plurality of flexible elements (e.g., arms affixing (44) to frame (43) as seen in FIG. 5; or arms (431), (432) as seen in FIGS. 7(A,B), etc.) distal to said transducer (1), and an actuator (PZT elements between (44) and frame (43) as seen in FIGS. 5, 7, etc.) attached to said substrate (43) distal to said transducer (1).

As per claim 2, said actuator includes a layer of piezoelectric material (e.g. see, *inter alia*, COL. 17, lines 22-25).

As per claim 3, said actuator includes a layer of piezoelectric material, and said transducer layers are substantially parallel with said layer of piezoelectric material. That is, the transducer as seen, e.g., FIG. 5, has a dimensional attribute extending from the left to right side of the slider (laterally, as does the PZT elements sandwiched between electrodes (45)).

As per claim 4, said actuator includes a plurality of layers of piezoelectric material (e.g. see, *inter alia*, COL. 17, lines 22-25 and, e.g., FIG. 5, wherein there is depicted multiple piezoelectric elements).

As per claim 6, said flexible elements (e.g., FIG. 5 or FIG. 7A, 7B, etc.) are “substantially” aligned with a center of mass of said rigid body (43) (since they are symmetrically aligned with frame (43)).

Art Unit: 2652

As per claim 7, said rigid body (43) has a media-facing surface separated from a back surface in a Z-direction, and at least a portion of said flexible elements is disposed at a Z-height between said surfaces (e.g. FIG. 5).

As per claim 8, said flexible elements (e.g., arms affixing (44) to frame (43) as seen in FIG. 5; or arms (431), (432) as seen in FIGS. 7(A,B), etc.) are aligned substantially with a plane, and said rigid body (43) and said actuator (PZT elements between (44) and frame (43) as seen in FIGS. 5, 7, etc.) are intersected by said plane (since they are within the same plane; FIG. 5).

As per claim 10, at least one of said flexible elements (e.g., arms affixing (44) to frame (43) as seen in FIG. 5; or arms (431), (432) as seen in FIGS. 7(A,B), etc.) contains a plurality of conductive leads. This is required in order to energize the PZT elements to provide actuation of the PZT elements.

Additionally, as per claim 11, the device further is defined as comprising (as per embodiment depicted in FIG. 21): a wafer substrate piece (3) disposed between an electromagnetic transducer (1) and an electrostrictive actuator (41, 45, 44 as seen in FIG. 21), said substrate piece shaped as a rigid body adjoining said transducer (1) and as a flexible element (flex arms of (3)) connecting said rigid body and said actuator.

As per claim 12, said actuator includes a layer of piezoelectric material (PZT elements between (44) and frame (43) as seen in FIG. 21).

As per claim 13, said actuator includes a layer of piezoelectric material (PZT elements between (44) and frame (43) as seen in FIG. 21), and said transducer (1) includes a plurality of layers (inherently provided, e.g., the poles and gap of an inductive head which must necessarily be present in order to operate) that are substantially parallel with said layer of piezoelectric

Art Unit: 2652

material. That is, the transducer as seen, e.g., FIG. 21, has a dimensional attribute extending from the left to right side of the slider (laterally, as does the PZT elements sandwiched between electrodes (45)).

As per claim 14, said flexible element (e.g., arms of (3)) includes a plurality of flexible portions aligned substantially with a plane, and said rigid body and said actuator are intersected by said plane (e.g., a vertical plane that crosses flex arms of (3) and frame parts (43) as seen in FIG. 21).

As per claim 19, said device includes means for providing electrical voltage to said actuator (the means are the electrical elements that are required to energized the PZT material of actuator (4)).

Additionally, as per claim 20, the device is further defined as comprising: an electromagnetic transducer (1) including a plurality of solid transducer layers (as discussed per claim 1 and/or 11), a substrate (e.g., 3 as seen in FIG. 21) adjoining said transducer (1), said substrate (3) shaped as a rigid body adjacent to said transducer (1) and as a plurality of flexible elements (flex arms of (3)) distal to said transducer (1), and actuation means (4) for positioning said transducer (1), said actuation means (4) attached to said substrate (3) "distal" to said transducer (1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 2652

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soeno et al. (US 6,246,552 B1).

See the description of Soeno et al. (US 6,246,552 B1), *supra*.

As per claims 9 and 17, although Soeno et al. (US 6,246,552 B1) does not expressly show wherein the back surface of (43) or (3) has a protrusion extending away from the media-facing surface, Official notice is taken that protrusions provided between sliders and their supports to allow for pitching motion of the slider relative to a medium surface, is a concept that is notoriously old and well known in the art.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the back surface of (43) or (3) of Soeno et al. (US 6,246,552 B1) as having a protrusion extending away from the media-facing surface.

The rationale is as follows: one of ordinary skill in the art would have been motivated to provide the back surface of (43) or (3) of Soeno et al. (US 6,246,552 B1) as having a protrusion extending away from the media-facing surface, in order to allow for pitching motion of the slider relative to a medium surface, thus allowing the slider to compensate for uneven disk surface topography, as is well known, established and appreciated in the art.

As per claim 18, although Soeno et al. (US 6,246,552 B1) remains silent with respect to the composition of the rigid body and actuator containing a material including silicon, Official notice is taken that actuators and their associated rigid bodies formed as containing the semiconductor silicon, are notoriously old and well known in the art.

Art Unit: 2652

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the composition of the rigid body and actuator of Soeno et al. (US 6,246,552 B1) as containing a material including silicon.

The rationale is as follows: one of ordinary skill in the art would have been motivated to provide the composition of the rigid body and actuator of Soeno et al. (US 6,246,552 B1) as containing a material including silicon, in order to allow for ease of manufacture in forming active-state actuators, providing a material which lends itself to thin-film fabrication techniques, as is well known, established and appreciated in the art.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William J. Klimowicz whose telephone number is (703) 305-3452. The examiner can normally be reached on Monday-Thursday (6:30AM-5:00PM).

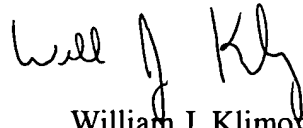
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Application/Control Number: 09/912,723

Art Unit: 2652

Page 8

A handwritten signature in black ink, appearing to read 'Will J. Klimowicz', written in a cursive style.

William J. Klimowicz
Primary Examiner
Art Unit 2652

WJK

May 14, 2003